

CHARGE NUMBER: 1803
PROGRAM TITLE: New Primary Processes
PERIOD COVERED: April 1-30, 1980
PROJECT LEADER: R. G. Uhl

I. CONVEYING STUDIES

Tobacco attrition studies on the belt conveyor system were continued. ET breakage was examined at a dropoff height of 4 feet, with variation of bed depth, belt speed and number of recycle passes. It was determined that 9 passes are required in order to obtain results that are consistently repeatable. Five tests run at a belt speed of 1 ft/second and a 1" bed depth showed an average loss in % longs of 4.1 units. Testing at higher belt speeds (2.5, 4.0 ft/second) indicated a "dead spot" resulting from the steep angle (20°) associated with the 4 foot dropoff height. This caused the tobacco to tumble in place at the feed end of each conveyor rather than continue up the belt, limiting testing to extremely light loadings. Comparison of all results to date shows that dropoff height is the major factor affecting conveyor breakage. Testing of the belt conveyor system has been temporarily suspended due to transfer of the feeder system to the carbamate expansion process.

II. ALKALOID REDUCTION

Ammonia/steam treatment of cut rag in the vertical steam tube (VST)/Adt dryer system showed alkaloid reductions of 30, 15 and 10% at tobacco rates of 60, 200 and 400 lbs/hour, respectively. The test grid was rerun at two VST residence times as well as at standard and reduced NH_3 concentrations in the steam. This is intended to show repeatability and to minimize NH_3 , both the added amount and the residual amount remaining in the tobacco exiting the dryer. Preliminary results show residual NH_3 increasing with tobacco throughput. The previous test has shown alkaloid reduction inversely related to residual NH_3 at the same progression of feed rates. Engineering design is in progress to equip the dryer with rotary locks. This will be required to increase steam/tobacco contact at the 1200 lbs/hour throughput necessary to simulate production tobacco loadings.

A modified MAG drum, with a column simulating the VST, has been put into service for small scale testing. This unit will facilitate a controlled study of the effects of residence time, steam rate and ammonia concentration in the steam on alkaloid reduction, and the effects of the first two parameters in removing residual ammonia.



R. G. Uhl

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